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**‘I’ve been a whizz-kid since I’ve been at college’: Giving voice to the collective memories of adults with learning disabilities about the role that technology has played in their lives**

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# 'I've been a whizz-kid since I've been at college': Giving voice to the collective memories of adults with learning disabilities about the role that technology has played in their lives

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## ABSTRACT

The focus of this paper is the history of technology use by people with learning disabilities in the UK in the late twentieth century and the impact that technology has had on lives of people with learning disabilities. A methodological framework, underpinned by the principles of inclusivity, transparency and reciprocity was employed to enable eight adults with learning disabilities to share their memories of using technologies, from childhood to the present day. Our analysis of these histories challenge notions of deficit, dependency and inequality that are traditionally associated with people with learning disabilities.

Keywords: technology, learning disabilities, history, voice, inclusive research

## INTRODUCTION

The focus of this paper is the memories or life histories of people with learning disabilities regarding how they experienced the introduction of technology into their lives and the impact (if any) technology had on their lives. Learning disabilities is a UK term and we recognise that the term intellectual and developmental disabilities has a wider international use. Definitions of learning disabilities and intellectual and developmental disabilities can vary depending on factors such as country; context (e.g. medical, social or education) and stakeholder groups (e.g. researcher, practitioner, carer or self-advocate). However, for the purposes of this paper we propose to adapt the definition of learning disabilities offered by Seale, Nind and Simmons (2012, pp.1-2) to argue that people with learning disabilities: "are deemed to have some form of difficulty with experiencing and acquiring new information. Secondly, this difficulty is described as starting in childhood. Thirdly, the difficulty is said to impact on people's ability to cope independently." Such a definition would include people who are categorised with labels such as Autism and Down Syndrome but exclude those who are labelled as having specific learning difficulties such as dyslexia.

In the context of the project reported in this paper, the authors position themselves as actors in the history of technology and learning disabilities. Jane is an academic who began researching the role that technology plays in the lives of adults with learning disabilities in the late 1980's. She also worked as a consultant and as a social services day centre officer supporting adults with learning disabilities (and the staff that worked with them) to use technologies. Karen is an experienced technology user who has personal experience of living with a learning disability. She began using some of the very early microcomputers back in the 1980's and later worked for ten years as the Internet Officer for a regional People First group. Ajay also contributes to this paper as an experienced technology user who has personal experience of learning disability. He works at the

Rix Research and Media Centre at the University of East London as a technology assistant. He teaches people with learning disabilities and their support workers how to use multimedia as a self-advocacy tool.

In this paper we will argue that there has been an absence of research between the 1980's and the present day that has sought to record the memories of people with learning disabilities regarding how they experienced the introduction of technology into their lives and the impact (if any) technology had on their lives. This absence is surprising given the dominant discourse in the literature which began arguing in the late 1970's (and continues to argue) that technologies, particularly microtechnology, had the potential to transform the lives of disabled people. This paper will therefore attempt to fill an important gap in knowledge in terms of giving voice to the ignored or forgotten aspects of people with learning disabilities' life histories and providing insights that might inform future technology support for people with learning disabilities.

## BACKGROUND

In the 1980s' the predominant mainstream technologies in the UK were microcomputers (e.g BBC Micros, Commodore 64's, Apple II's and ZX Spectrums) and the software programmes that ran on them. In order to enable disabled people to access and benefit from microcomputers, more specialist technologies were developed that included input devices needed to control the microcomputer (e.g. touch screens, switches); output devices required to make the content of programmes accessible to the user (e.g. text to speech) and communication aids (Heddell 1985; Southgate 1985). Specialist software programmes were also developed to work alongside these devices and to address the needs of users with learning disabilities. For example, cause and effect games operated by a touch screen or early literacy programmes operated by a switch (Blenkhorn 1986; Hope 1987). The user-friendliness of the BBC Micro and the popularity of its programming language (BBC BASIC) contributed to a dominance in the special educational needs market place and most of the specialist devices and software were developed for the BBC Micro.

In the 1990's personal computers continued to dominate the scene, but machines like the BBC Micro gave way to machines developed by companies such as Acorn, IBM, Research Machines Apple and Operating Systems such as RISC OS and Windows. It took some time for the specialist technologies to migrate to all of these different platforms. Practitioners and researchers were also beginning to see the potential of new technologies such as robotics and virtual reality for disabled people (Hegarty 1991). Towards the end of the twentieth century, technologies became more sophisticated as computers became smaller, more powerful and more mobile and the arrival of the Internet introduced very different learning opportunities to those afforded by earlier technologies (Florian and Hegarty 2004).

## Technology policy and practice

In the UK a significant amount of public funding and collective effort was channelled into attempting to realise the transformative potential of technologies for disabled people (Fowler 1991). Much of the focus regarding the potential of technology however, was largely on children rather than adults. In the UK, from the early 80's up until 2010 there was a national programme co-ordinating the use of technologies in compulsory education. For children and young people with 'special educational needs' technologies were used in schools to help develop literacy and numeracy skills; improve cognitive, sensory and motor skills and facilitate communication (Hope

1987; Hawkrigde and Vincent 1992). In addition, emphasis was placed on using technologies that would facilitate access to the curriculum (Liston 1986; Day 1995). For young adults, technologies were used in college to continue trying to develop literacy, numeracy and communication skills; to promote skills that were perceived as 'vocational' such as information handling and word-processing as well as soft skills such as self-esteem and motivation (Fowler 1988; Vincent 1989).

When people with learning disabilities left school or college, they became the responsibility of either Social Services or the Department of Health, neither of which invested in a national infrastructure of support and networking in the way that education had. In the late 80's, health and social services began working towards closing down large, segregated long term institutions and supporting the residents to integrate into local communities and live in smaller, supported living or 'group homes'. Microcomputers were introduced into the long term institutions as part of a drive to use 'living skills' programs to teach the residents the social life skills (e.g. telling the time, independent travel) they would need when they began living more independently (Armstrong and Rennie 1986; Wain 1991). Microcomputers were also introduced into social service day centres and similar third sector organisations in order to continue to develop the life and literacy skills of people with learning disabilities who were now living in the community (Jotham and Leicester 1988; Jotham et al. 1989). Towards the end of the twentieth century technology usage by adults with learning disabilities became more varied to include more social goals such as self-advocacy, making friends and community participation (Blamires 1999; Seale 2014).

## A CRITIQUE OF EXISTING RESEARCH

It is important to note that both the disability and the science and technology studies fields have tended to ignore adults with learning disabilities and their relationship with microcomputers. Instead, scholars who work at the intersections of these fields have highlighted disabilities such as Deafness, spinal cord injury and brain injury and technologies such as cochlear implants, media technologies (e.g. TV) and powered wheelchairs (e.g. Blume 2012; Goggin & Newell 2003; Roulstone 2016). Despite the invisibility of adults with learning disabilities in this literature we consider that it offers something useful because it does not view the development and implementation of novel technology as the mere use of an innovative idea that turns into an applicable neutral product (Goggin 2017; Roulstone 1998, 2016). How disabled people access and use technology is influenced by how wider society constructs both technology and disability. Roulstone (2016,4) argued that 'technologies represent the wider constructions, zeitgeist and social imagination as much as they represent tangible artefacts'. The relationship between disabled people and technology is therefore influenced by social processes, cultural practices, values and enabling/disabling experiences. In the context of the life histories people with learning disabilities we are interested to see if they suggest the existence of any disadvantage or discrimination.

Given the perceived explosion of new technologies for disabled people between 1980 and 2000 and the associated response of policy-makers and practitioners to this explosion it would be reasonable to expect that technology focused research literature would be brimming full of positive testimonies from and about people with learning disabilities and that history focused research literature would have a strong technology seam. Our review of the literature however indicates that this is not the case, rather there is an absence of focus on learning disability in

technology-focused literature and an absence of a focus on technology in learning disability history literature.

### The absence of learning disability in technology focused literature

In the digital divide literature, despite the concern regarding the digital exclusion of people with learning disabilities, people with learning disabilities are virtually invisible. Digital divide surveys either do not capture data on disabled peoples' technology experiences or do not distinguish between different kinds of disabilities such as physical disabilities and learning disabilities (Chadwick 2013). Furthermore, in mainstream digital inclusion research, meaningful use of technology has been associated with 'smart use' or use that is relevant and has some 'fit' with a person's life (Selwyn 2006; Selwyn & Facer 2007). To date there has been little in-depth consideration of what constitutes meaningful or appropriate use of technology for people with learning disabilities. Furthermore, the digital divide discourse tends to be dominated by a focus on access to the Internet and mobile technologies, rather than more varied technologies such as assistive technologies- potentially excluding people with learning disabilities further.

In the educational technology practice literature published between 1980 and 2000 many stakeholders, ranging from parents, teachers, developers, advisors and researchers, voiced their opinions and experiences of the transformational nature of technologies for disabled people (Howe 1980; Glen 1981; Kitchen 1982; Ward 1985; Duffin 1986; Painter 1987; Cowley 1988). One rare piece of research during the period of interest did seek to more directly represent the voice and experience of disabled users themselves was that conducted by Vincent (1989) who reports on a research project which sought to describe the technology experiences of young people with 'special educational needs' who were attending further education colleges. However, for the ten young people with learning disabilities whose experiences are reported, they are for the most part reported by their teachers either in a third person narrative or in a mixture of third and first person narratives. We are aware that because people with learning disabilities can face challenges when trying to communicate their experiences. However, we feel that with creative support, it should have been possible for researchers during this period to record more first-person accounts of technology use by people with learning disabilities. In the context of the study reported here, we are seeking to explore what this creative support might look like.

### The absence of technology in learning disability historical research

One field of research which has sought to give voice to the experiences of people with learning disabilities has been life-history work. Much of the collaborative life-history work between social historians and people with learning disabilities has focused on issues such as the experience of being institutionalized and relationships with parents and others. The results offer powerful insights into issues of oppression, loss and resilience. Technology, however has not heavily featured in this life-story research. In our review of life-story literature we have found just three examples where parents mention briefly how their child has used technology and three examples where people with learning disabilities themselves share their experiences. In '*Witnesses to Change*' (Rolph et al.2005,318) three parents briefly mention how their children used computers at college. In '*Good Times, Bad Times*' (Atkinson et al.2000,79), Simone Apsis talks about her passion for computer programming. In '*Testimonies of Resistance*' (Mitchell et al.2006,36) Majorie Chappell and Karen, our third author, share their life histories and in doing so make some mention of computers. Given that technologies were hailed as revolutionary tools with the power to

transform the lives of people with disabilities, it is surprising that technologies do not feature more frequently or powerfully in the life-histories of people with learning disabilities that are reported in life-story research. There could be a range of reasons for this absence, including a lack of familiarity with technologies on the part of the historians.

Our review of the existing research therefore suggests that the voices of people with learning disabilities are missing from the collective accounts of the impact of technologies on their lives and that this invisibility started in the 1980's and continues to this day. In this paper we will report on a study that has sought to develop methods that will give voice to the technology related memories of eight adults with learning disabilities. Through these methods the aim is to explore their experiences and illuminate issues that would be worthy of further exploration.

## METHODOLOGY

Although we believe that recording the history of technology use by people with learning disabilities is important, we also believe that the way we choose to both capture and tell that history is important. In this section we will outline and explain our underpinning methodological framework and then describe how the processes we engaged in, reflected this framework.

### Underpinning methodological framework

In planning the design and methods of our research we have drawn on key arguments within disability studies that argues for the importance of disabled people having their voice through active participation in research about their lives (Watson 2012). Therefore, in order to enable the voices of people with learning disabilities to be heard in the history of their technology use, our methodological framework is underpinned by the principle of inclusivity. However, we also feel that it is important to promote a democratic ownership of the history of technology use by people with learning disabilities and enable the voices of *all* actors to be heard, and to reflect this we have adopted two further principles of reciprocity and transparency.

#### Inclusivity

For the purposes of our study we have chosen to adopt the definition of inclusive research proposed by Walmsley and Johnson (2003,10) who depict inclusive research as that which 'involves people who may otherwise be seen as subjects for the research as instigators of ideas, research designers, interviewers, data analysts, authors, disseminators and users'. Walmsley and Johnson argue that inclusive research has three distinguishing features: the research problem is owned by disabled people; it is conducted to further their interests and address issues which matter to them and ultimately lead to improved lives for them and it is collaborative, involving people with learning disabilities in the process of doing the research and accessing and representing their views and experiences.

In the research reported in this paper, Karen and Ajay, as people with learning disabilities, have taken ownership of the research problem through their roles as researchers, working with Jane to design ways of capturing the histories of technology use and in making sense of the histories once gathered. The research reported here addressed matters that were of importance to Karen, Ajay and the other eight participants with learning disabilities in that they were all technology users and wanted to share with others how they used their technologies. For some, this desire to share



was motivated by a desire to inform the practices of support workers, so that they could more effectively support the technology use of people with learning disabilities. Finally, in addition to involving people with learning disabilities as researchers, the research was collaborative in that the participants with learning disabilities were supported to share their technology memories in ways that were comfortable and meaningful to them.

### Reciprocity: sharing histories as a two-way interaction

We have been influenced by the ideas of Meninger (2006,188) who argued that: “The power of life story work is its power to transform narrators, listeners, authors and readers. It makes them look at each other in different and hopefully more respectful ways than they did before”. We therefore position our research as reciprocal in that we believe that unless the technology memories of people with learning disabilities are heard alongside and connected to the stories of other actors in the history of technology and learning disabilities there is a limit to the extent to which the stories will transform the attitudes, understanding or practices of others.

As actors in the field, all three authors of this paper are over the age of thirty and remember how technology became a part of their lives. Jane remembers, when she was a PhD student between 1987 and 1993 how this period was one of great enthusiasm and hope. She later wrote about the excited and hopeful discourses surrounding technology which positioned technology as an innovative panacea for disabled people (Seale 1998). Karen who is a similar age to Jane, has no recollection of being given access to technology, let alone specialist technology at school. Her first experience of technology was when she had left school. Ajay is younger than Karen and he does remember having access to and using technology at school, but he does not particularly remember any specialist technology that might have been offered him to address his particular learning or communication needs. Through our collective analysis of our own technology memories of the time and those of eight participants with learning disabilities we hope to be able to re-construct and extend our understanding of the practices of ourselves and others.

### Transparency: being clear and honest

In order to be democratic in the way the voices of story-tellers and researchers are presented in our research we have positioned our research as being transparent. In particular we are committed to being careful not to change the words or voice of the story-tellers but also being careful not to suppress the voice of the researcher. Jane, Ajay and Karen as authors of this paper, are very aware that they have a responsibility to narrate the stories of others in such a way that they don't take over ownership of them and become 'colonizers' of other peoples voices (Hooks 1990,151-2). In seeking ways to manage this, we have sought to apply minimal editing to the stories. However, because of article length limits, we have occasionally edited for length and therefore cut out aspects of the story. However, wherever possible we have used the participants own words and tried not to extract them out from the wider story or context, so that the people and their stories have not become a sequence of disembodied, disconnected, short quotes.

Inclusive researchers such as Walmsley and Johnson (2003) and Nind (2009) have commented on how, for some papers that are co-authored by researchers working alongside people with learning disabilities there can be a lack of clarity and transparency about 'who did what' in the project with the contribution of the researcher remaining unexplained. They argue that such lack of acknowledgement is symptomatic of a move to hide the role of the skilled researchers in order to



deny difference and promote an image of competency and normality for the people with learning disabilities. Chapman and McNulty (2004) in their discussion of the non-disabled researcher's role in helping people with learning disabilities prepare and practice their presentations and write journal articles, adopt a position of transparency and offer the 'story' of how they contributed to the research, but in a separate article. Inspired by Chapman and McNulty (2004), we wish to narrate the story of the research project and in doing so make clear how Jane, Karen and Ajay each contributed to the capturing, sharing and analysis of the histories of technology use by people with learning disabilities.

## The research process

We will now share in detail the inclusive, reciprocal and transparent processes we implemented in our research project in order to explore the technology related histories of people with learning disabilities.

### Writing the funding and ethics proposals

The idea for the research project, came from Jane. Her inspiration came from some previous research she had conducted in which she had interviewed practitioners in the field of special needs technology about their memories. She was aware that without the memories of people with learning disabilities, the history of this period would be incomplete. In October 2016, Jane therefore submitted a funding bid to the RTR Foundation for a small grant to develop and pilot an inclusive approach to facilitating the sharing of technology memories. Alongside this funding bid, Jane submitted an ethics protocol to the ethics committee at her University which outlined how issues of consent would be addressed including: recruiting adults over the age of 18, the production of accessible information and consent forms and continual revisiting of consent during the project.

### Recruiting the researchers and participants with learning disabilities

While writing the funding and ethics protocol Jane contacted Ajay and Karen and asked them if they would be interested in working alongside her as researchers on the project. Jane identified Karen as a potential researcher with a learning disability through contacts she had with the Social History of Learning Disability Research Group [1] Jane had met Ajay back in 2013, because he had given a presentation on multi-media advocacy at a seminar series she had organised [2].

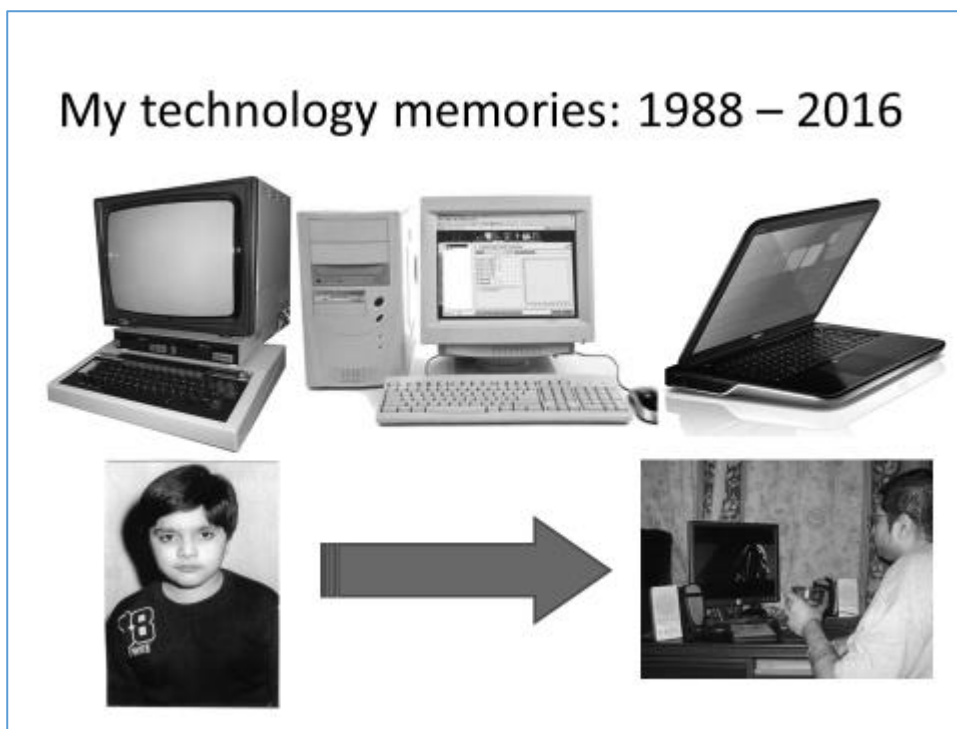
Jane also identified and contacted two groups who were ideally placed to participate in the project due to their interest in technology and/or inclusive research. The first was a group of adults with learning disabilities who work with Val Williams at the Norah Fry Centre for Disability Studies at the University of Bristol [3] on a range of activities including teaching and funded participatory research projects. Jane met this group back in 2014 to talk about her initial research ideas and they were keen to get involved. The second group was the Woodbine Multi-Media and Research Group which was suggested to Jane by a colleague, Liz Tilley, because they had been working on a related project with her called 'The Inclusive Archive Project' [4]. Jane contacted Susan Spencer who supported the IT Group and she indicated that the group were interested in taking part in the research.

## Developing and piloting an approach to facilitating the sharing of technology memories

Once the funding had been awarded and ethical approval had been granted Jane met with Ajay and Karen separately to plan how to capture people's memories of their technology use. Jane met Ajay in person on two occasions. During their second meeting they Skyped Karen to share with her their ideas. Separately, Jane met Karen in person on two occasions.

Jane shared with Ajay three ideas of how they might help participants to tell their stories: memory box; scrap book or multimedia presentation. The idea of a Memory box was inspired by Jane's attendance at an end of project conference run by the Inclusive Archive project [4], in which people with learning disabilities had been facilitated to collect together a range of memorabilia that was important to them and place it in a box, which could be carried around and shared with others- taking each piece of memorabilia out and explaining its significance. The idea of a scrap book was inspired by Jane's own professional career, in that she had kept a folder containing photographs of her time working as a special needs technology consultant along with paper copies of all the training materials she had developed. The idea of a multimedia presentation using PowerPoint was inspired by the multimedia Life story work pioneered by The Rix Centre [5] and was a method that Ajay was very familiar with. To make these examples come to life for Ajay, Jane brought along her own memory box, scrap book and PowerPoint presentation and used them to tell her story of working as a practitioner in health and social care settings between 1984 and 2000, supporting adults to use technologies.

Having heard Jane's technology story and seen the methods she used to convey her story, Ajay tried the methods out at their next meeting. He brought along some of his own technology and his own PowerPoint presentation (Figure 1). Jane and Ajay then had a Skype chat with Karen and shared with her their memory boxes, photos, scrapbooks presentations and asked her what she thought. Karen felt that unlike Ajay, she would be unable to create a memory box or a PowerPoint presentation herself because she did not have any of her old technology equipment; she did not have any photographs of her using her old technologies and she did not have word processing or presentation software on her laptop. We therefore agreed that participants could choose to be interviewed about their memories and then afterwards a digital version would be produced of their story using generic images found on the Internet as illustrations. This is how Jane worked with Karen to produce her own story.



**Figure 1: An extract from Ajay’s PowerPoint presentation outlining his technology memories**

### Capturing the memories of participants with learning disabilities

Jane and Ajay worked with the Bristol group to capture their memories and Jane and Karen worked with the Woodbine Multi-Media and Research Group. We visited each group twice. In the first meeting we introduced the project by sharing our own stories with them- using our memory boxes, scrapbooks and multimedia presentations as prompts to support the story telling but also to give people ideas about how they might choose to tell their stories. At the end of the first meeting we supported participants to decide what method they would use to tell their story in our second meeting. In the second meeting (around a month later) we facilitated each person in turn to share their story and encouraged the rest of the group to ask questions and compare their experiences. Each meeting was audio-recorded and Jane produced a transcript of each recording. Jane used these transcripts to create a life-story for each participant and gave each life-story back to participants for final approval.

### Analysing the memories of participants with learning disabilities

The approach that we took to data analysis reflects the approach described by Williams (1999,51) and can ‘broadly be characterised as a thematic content analysis’ in that we reflected upon and recorded the bits of the stories that we found interesting and our own reactions to these interesting aspects. These reactions were strongly influenced by our own personal histories and we will discuss this more later on.

### Writing this journal article

The production of this article was a three stage process. Jane wrote the first version of the article and then shared an accessible version of it with Ajay and Karen for comments, changes and

approval. Following a second edit, Jane then shared an accessible version with the participants for comments, changes and approval. Following a third edit, Jane then submitted the article.

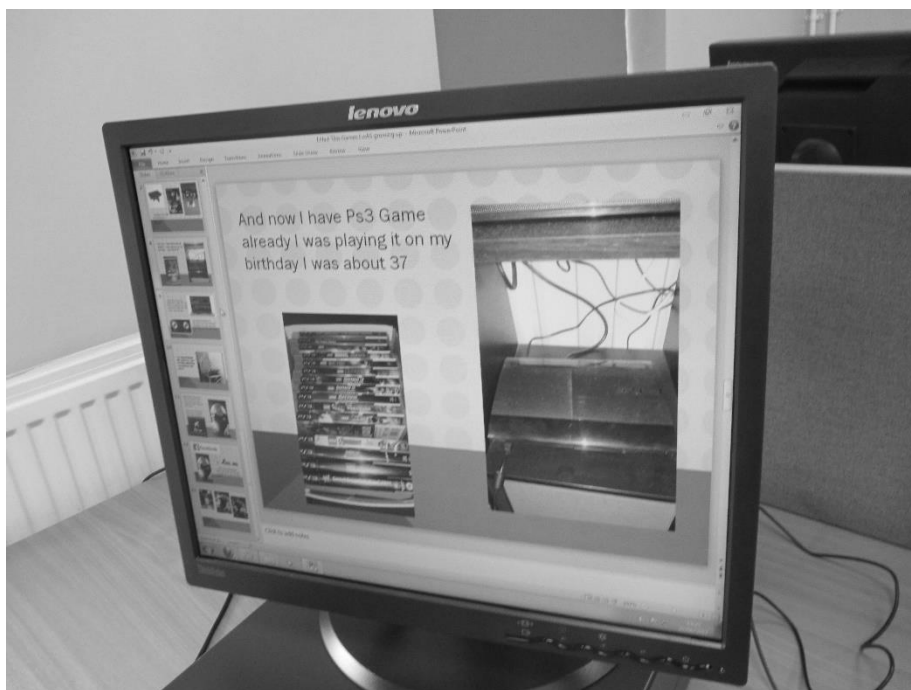
## RESULTS: COLLECTIVE MEMORIES OF TECHNOLOGY

In order not to colonize the voices of our participants and in accordance with our principle of transparency, in this section we will present their eight stories uninterrupted by our commentary or analysis. The stories represent the experiences of four men and four women. They were all “White British”. Three were in the 20-30 age group; three were in the 40-50 age group and two were in the 50+ age group. Two lived with their parents, the rest lived independently or in supported living. None were in paid employment. In terms of their technology life stories, there are similarities across the group in that for the majority, school technology use does not feature heavily in their accounts, in contrast to college or adult education use. All except one of the participants talked about their love of playing computer games and using tablets.

### Technology Tales From The Woodbine Multi-Media and Research Group

Daymien, Ros, Colin (a pseudonym) and Robert shared their technology memories. Daymien created a PowerPoint presentation;(Figure 2); Ros created a Word document and brought along a memory box (Figure 3); Colin created a scrap book ( Figure 4) and Robert created a Word document.

#### Daymien



**Figure 2: A slide from Daymien’s PowerPoint presentation**

I remember using computers at school, but I can’t remember much about what I did with them. I was being bullied at school- that is what I remember more than what I did on the computers.

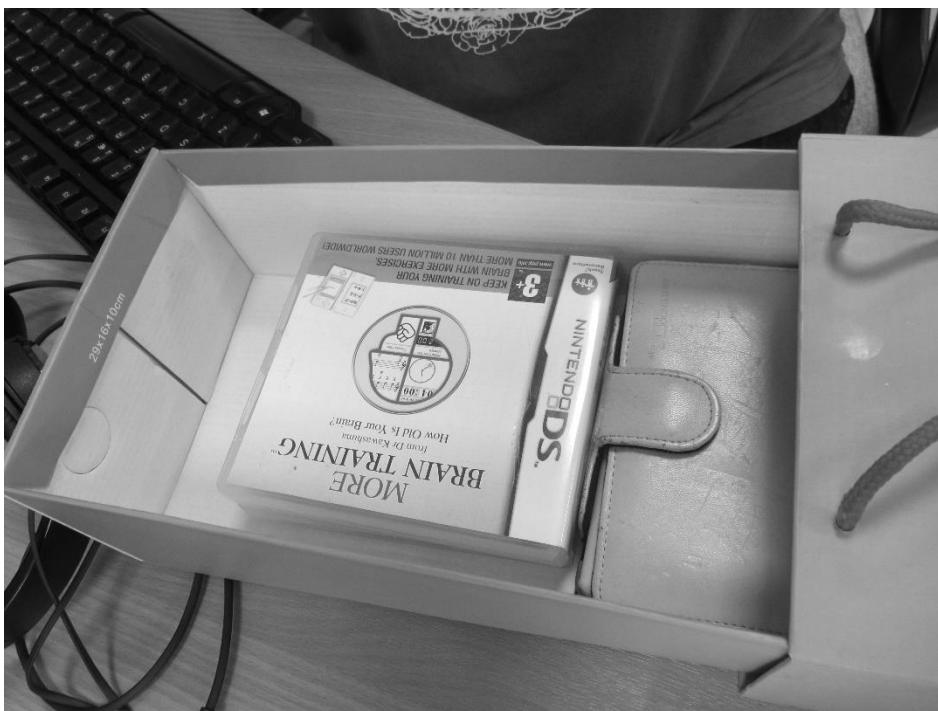
I went to College when I was 18. I remember using computers (PCs and laptops). I wanted to do it. In 2002 I did a course on how to use the Internet. I passed the European Computer Driving License course. I got 94%. In 2004 I was part of the Newsletter team and we used the computer to produce a newsletter. "I've been a whizz-kid since I was at college".

I had a Sega Megadrive at home. I played games like Real Monsters and Streets of Rage with my best friend. I bought a Gameboy at the airport in Spain in 2001. It was good. I used to play Duck Tales, Donkey Kong and Looney Toons. I played Megadrive with my brother. We played in his flat. The game we played was EA Sports Soccer. I remember he beat me a thousand times. When I was about 27 I had a PS2, but now it is broken. I played Harry Potter Games and Spiderman 3. Now I have a PS3. I was playing it on my birthday.

I also use the phone a lot. I've got lots of information on my phone. I won some money on the Grand National and I bought myself a laptop.

Now I am a DJ called "DJ Shake Me Up". I was a DJ at the MM Centre. That was good. I learnt it from my brother. I started off playing CDs, then I used a computer to play my tunes. I DJ'd at the GC Club with V and we went 'Live Me' on Facebook. That was cool and wicked.

Ros



**Figure 3: Ros's technology memory box**

The first ever bit of technology that I ever had was a Speak and Spell. It was the kind of the first thing that I learnt how to spell on, because my spelling was atrocious. Then when I was at boarding school we had Commodore 64s. The headteacher bought them for us to use in our leisure time. We didn't use them in class. One of my favourite games was Chucky Egg. My favourite computer was the Commodore 64 because it was the first computer that I ever had. It was easy to use, but loading up the games took a very long time. I used to get quite frustrated when the

Commodore wouldn't load up properly, but I didn't need any help, I felt I could be quite independent.

I went to a college which still had BBC computers. We did writing and projects like the Channel Tunnel. I first used the Internet at College. In 2000 I did a certificate of pre-vocational education, which I did for 3 years. We then had PCs.

I started at Woodbine in 1999 and my first activity was education and computers. We still had BBC computers. I learnt how to type out things like the weekly menu for the café downstairs and other things.

I had a PC at home around 1999, which my brother brought me. It had the Internet and then I used to look up things like famous actors. In 2009 I joined Facebook on my computer at home.

In 2012 I had a big leap- I had my first iPad, which we do lots of things with at the woodbine IT group. We did a project with the Rix Centre called Icicle using the iPad and I wanted to carry on using it. I said to my mum I want an iPad and she said what do you want an iPad for? I said- because I do. My mum gave me her iPad, so now I've got an iPad and a tablet. In 2015 I got a Nintendo for Christmas. My favourite game was BrainTraining.

## Colin

I remember using the BBC computer at the Day Centre in the 1980's. I used a money programme, played word games and did some typing. These old BBC computers eventually came over to the Woodbine Centre for a while. I also used computers at the Institute of Adult Education.

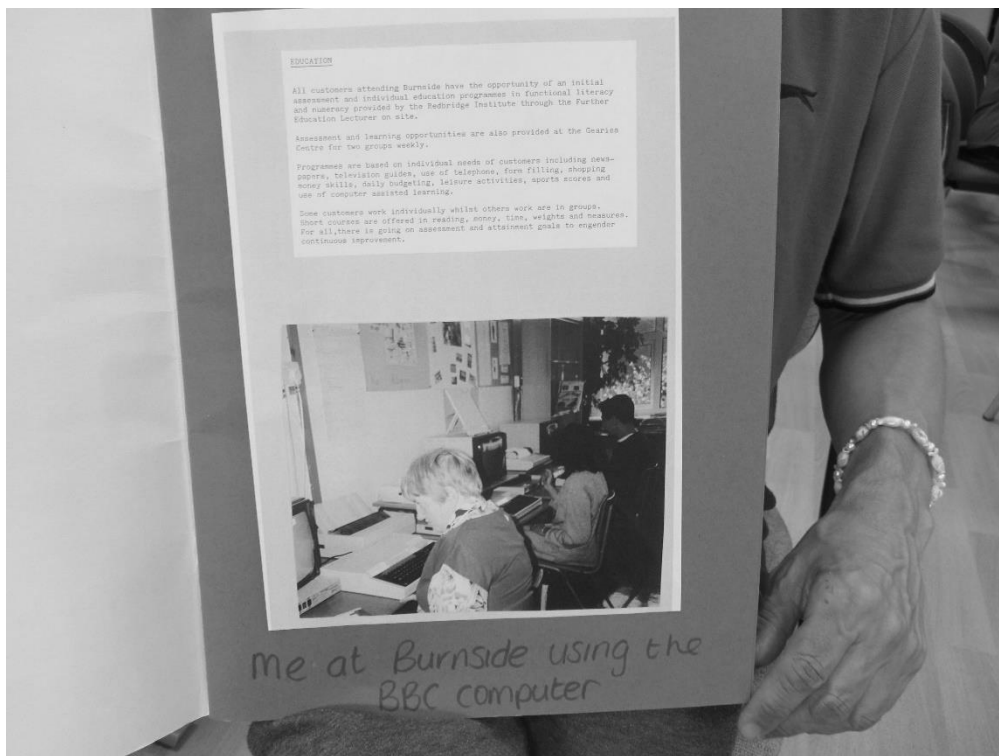
The IT Suite at the Woodbine Centre opened around 2010 and I used the PCs in the IT Suite. At the Opening of the IT Suite, I did a presentation about the Making Things Better- Accessible Information Project, with Ros and Robert. Having the computer helped me.

The 'Making Things Better' project was run by the Speech and Language Therapist. It was a group about making easy read information. Using the computer in this project helped me to read, because I could use photos and images from the Internet and put 'the pictures next to the words'. One of the pieces of Easy-read that I worked on was the Woodbine Code of Conduct

Recently, I participated in the 'Inclusive Archive' project. For this project, I used a Dictaphone to record my memories. I also used a Dictaphone when I worked on the Woodbine Newsletter. I used to go and talk to people and record their answers. I also (with the support of Sue Spencer) used a programme called Audacity to record a lot of my stories for a wiki that I made.

I had a big computer at home, then a laptop and now I have a tablet and a phone. Staff helped me to buy mine. Before that I had a laptop that my brother gave me. I love my tablet, I do. It's good because I can do whatever I want with it. I used to look up artwork on the Internet. I love art. I put some of my work in a competition and it got through to the Tate.





**Figure 4: A page from Colin's scrapbook**

## Robert

Robert told us more about his present use than his past use of technology. However he did remember using computers when he went to an FE college.

I've got two computers at home. One of them I got from the Redbridge Institute. I got a laptop for Christmas. I use my laptop for emails and reading the news online. I also like playing Spider Solitaire. I'm not on FaceBook.

I like using email to communicate with my family and friends from church. I get my newsletter from church by email. When I email people at church it is nice to keep up with them.

I also email my dad a lot and it is important to me that I can do that. When I was working on the Inclusive Archive Project I used to email my dad a lot to ask him questions about his life. My dad emailed back family photos and a story that my Aunty had written about the family and where they lived. I printed the story.

I have a basic android phone that one of my friends or family gave to me. I started using emailing my family when they moved away, because I was not very keen on the phone. I find it really difficult knowing what to do with it.

When I go on Yahoo I have to sign-in. After that I do the emails. Then after I sign off. So I don't have any problems.



## Technology Tales From The Bristol Group

Rachael, Kerry, Chris and Sal shared their technology memories. None of the participants brought along memory boxes or created presentations. Rachael, Chris and Sal brought along current technology that they owned such as iPads. For Kerry, Jane searched Google for images of the games Kerry said that she had used at school and printed these off as a stimulus for memory sharing (Figure 5).

### Rachael's technology memories

At infant school we searched on Google about the world. At junior school I didn't use computers. At the big school and at the college they had got iPads and computers. I just looked up different stuff. The teachers were using computers for reading and writing.

Now, I do go on my iPad a lot. I watch video clips on YouTube. Some are about the Prime Minister, Theresa May, because I like her. I've also got photos on my iPad of my family and of Jessie Wallace and Shane Ritchie from EastEnders. It makes me smile when I look up my favourite people on my phone and my iPad. I do like my iPad. I go on it every morning, afternoon and evening. When I go to bed I go on it. My mum and dad bought my iPad for me. I told my mum and dad that I wanted an iPad to play games, photos, making notes and time-sheets as well. The mini iPad is nice to carry around. The big one, the one I don't like, it too big really. That is why I chose the small one. The big one is too hard to carry.

I've also got the news on my phone- what is going on. Sometimes I go on my phone- I just need some space, because I don't get any space. I like the iPhone. I'm gonna get a new one for my birthday- iPhone7. My hearing aids are Bluetooth. Also the music on my phone links to my hearing aid and I can hear it. It is really clever.

I've also got a laptop at home. It has two photographs on it. One is Alan Rickman from Harry Potter. My dad used to do computers and IT. That was my dad's job. By dad has got an iPad as well. My dad helps me a lot. My sister has got a phone and an iPad as well.

### Kerry

When I was at school back in 1979 my friends used a program called Widgit- with Possum- where people who couldn't talk could move their body around to get different signals. The wheelchairs had voice synthesisers, which said what their names were and how they were feeling and all things like that.

Between the ages of 11 and 14 I remember using games software in school such as Dragon World, Flowers of Crystal, Granny's Garden and Little Red Riding Hood. I liked all the adventures games actually. I liked them all, because they taught you different things.

I never got to the second part [of Dragon World] It was always the first part. This made me really cross. Because we never used to be able to use the computers for very long. It was always in the afternoon, if we were good that we could use the computers. So I never managed to get to the second part. It was always the first part- 'This is tooth one of Dragons World, now you go on to the

next problem’- And on it used to go. I can remember that Little Red Riding Hood was the last computer game I played before I left school.

I didn’t use computers again until I went to the Day Centre- that was when I was about 19. The computer teacher used to sort out all the computer bits and pieces. That was good. I didn’t feel stupid or clever when I was using computers. It was just a nice thing to be on and get away from being picked on.

I’ve got a computer at home- but I don’t use it. Not now. I don’t use email. I’ve got an old mobile phone at home. I don’t have a printer at home any more. I can search the Internet with my dad’s help. I don’t use computers quite so much now. I go into my own little world with jigsaw puzzles not computers or technology.

**Figure 5: Images of the BBC Microcomputer game ‘Granny’s Garden’ that Kerry remembered playing at school**



Chris

I didn’t really enjoy school. My favourite lessons were those with computers- because I was good at computers. One of the teachers at school showed me how to use the computer. I’m quite a fast learner.

I did live at a residential college for three years. I used Excel and Word. We were learning just to get used to the programmes. I don’t really use those programmes now. Sometimes I use Word, but not very often. I find it quite difficult doing PowerPoint by myself. I helped other people when I was at school and college. I was the cleverest one in the computer lesson and that felt good.

My iPad is special to me because I can use it when I get frustrated and angry with people. It takes my mind off it. I get some space. I am happiest using technology when I can play a game and forget the rest of the world. It takes your mind off everything. But when the Internet doesn’t work, I get really annoyed.

I play games and watch films on my iPad. I’ve got a folder called ‘Games’ and in there are games like Cake Swap, Crazy Kitchen, Yummy Gummy and 8 Ball Pool. My favourite game is the Star

Wars Puzzle. You have got to match the same colours and get a line. You get three stars and then you go up a level.

I got my iPad from John Lewis. I didn't need any help choosing it. I go on YouTube and watch videos to see if they (technologies) are any good, if they are I go and get it. People say to me- do you realise this costs money. I'm not stupid! I had to get permission from supported living though to get it through. Because supported living look after my money, I had to fill out a form to get the money out.

I've also got Bluetooth headphones and speakers, a PS4, a laptop and an iPod Touch. I've got Windows 7 or 8 on the laptop, but I don't use it very much. I've got a smart TV as well at home. I can catch up on the things I've missed. I don't have a printer at home.

Sal

I did not really use computers at school. I learnt how to use the iPad myself. It's easy. My mums got one and my brother's got one, so we have all got one, you know? I put the news on like Rachael does. I put the news on first thing in the morning. Internet news. You've got it all the time. After 10 o'clock you get little snippets. Little bits of news. My happiest memories of technology use are listening to the news, to be honest with you. It's always at your finger-tips. It's always there. Before the iPad I had a laptop but it was too big. When I was in hospital in bed for two days, the laptop was too big. I wanted something to occupy myself. The iPad is small, you can pick it up.

I use Google for anything I want to know about. I buy books as well on the Internet with my Amazon Account. I don't use Kindles. What I don't like about Kindles is that when you go away abroad, the sunlight affects the screen. I can't read it. I also like holding the book when I read it.

I've just got a basic phone- just for calling and texting people. It is easy to use. It's only a £10 one, because I keep losing mine. So I get a cheap one. Then you don't have to worry about it-it's only £10. I take my phone outside, but I leave my iPad in the house.

I do play games like Crazy Kitchen. You lose yourself in it, I agree with Chris. I play simple games like snakes and ladders and Ludo. Ludo I play. But the trouble is, it gets addictive, Well it's not addictive, because you don't put any money on it, but time goes by doesn't it? It's not like Bingo or slot machines, but time goes by.

## DISCUSSION

In reflecting on the stories and discussing with one another the aspects that we found interesting or significant, we identified three main themes: the nature of technologies used by people with learning disabilities; the competent and meaningful use of technology for people with learning disabilities and the nature of support available to enable people with learning disabilities to use technology. We will illuminate and discuss each theme in turn and in the spirit of reciprocity share how they connect to our own histories.

## The nature of technology used by people with learning disabilities

In analysing the life stories, Ajay was particularly interested to learn about the variety of different technologies that participants had access to and used. This probably reflects the fact that he had a personal history of using a wide range of computers (e.g. from BBC Micros to PC's and iPads), programmes and applications (e.g. Windows 97, Paint and MovieMaker), games (e.g. Pacman, Sims and HexenII) and social communication tools (e.g. Email, MySpace and Facebook). He told us:

When I was at school, I remember there were some old BBC computers. When I went to Sixth Form College they were using old technology like Windows 97. When I was using the computer I was typing, saving the document, printing out the document. I think it was in 1999 that I went to WH Smith to buy a book on how to use Internet Email. I wanted to learn how to use email because I had Outlook on my computer, but I needed to set it up to work properly. I went to 2 places for work experience and training. One was in Stratford and I was using the computer to design and print certificates. The other was at McIntyre Care in Milton Keynes, doing illustrations. I used Paint. [When I began working at the Rix Centre] I had to check that the computer was working and also Windows MovieMaker and different multimedia software packages. In 2001 when I was using the computer at home I went to Internet Explorer. I was using Yahoo to find things I like, and using old social media like MySpace and Sims. I joined FaceBook in 2006. When I went to the Gamestation shop, I would buy some games. I like to play fun, action, adventure games.

We feel that the memories we have captured in our study serve to both illuminate and challenge the relationship that people with learning disabilities have with their technology particularly in relation to notions of inequality and difference. In terms of inequality, we noted that the participants in our study had access to and used a vast array of technologies. All of the participants had mobile phones, seven of the participants had tablets and seven of the participants regularly used the Internet. All of the participants played games, either on their phone, tablet or PC. Use of social media was less prevalent within the group. It is interesting to note that some of the participants relied on their families to purchase these technologies and others used their own monies (through state provided benefits). With this small group of participants we did not capture any examples of socio-economic deprivation, where participants wanted technology but were not able to afford it. In this sense they were perhaps a unique privileged group. This would seem worthy of further investigation. Taking this into account the results of the current study suggests to us that digital divide research needs more accurate and nuanced evidence upon which to base claims of digital inequality. Achieving this will probably require methods that are more inclusive than the traditional surveys that tend to be used with people who do not have learning disabilities.

In terms of difference, we were interested in the presence or absence of specialist or assistive technologies in the life histories of our participants. In the twentieth century, significant attention was paid in the research literature to the development of specialist or assistive technologies such as speech synthesisers and communication aids and the implications this had for constructions of disability. Disability and technology studies scholars such as Goggin and Newell (2003) argue that disability is built into technology through failure to develop 'mainstream' technologies that are accessible to all users. The existence of inaccessible "mainstream" technologies legitimises the existence of "special" or assistive technologies designed specifically for disabled people. For many, this is not acceptable as it has a stigmatising effect and reinforces the notion of disabled people being different. A popular, although not unproblematic, solution has centred on the promotion of Universal Design, with its emphasis on reducing the need for specialist adaptations, by designing with all possible users in mind (Roulstone 2016; Goggin & Newell 2003). In our study we noticed that none of the participants talked about having access to or using specialist assistive

technologies. One participant, Kerry, did talk about how her friends at school used specialist technologies such as Widgit [6], Possum [7] and wheel-chairs with voice synthesizers. This fascinated Ajay, who reflected:

‘The wheelchair had a voice synthesizer’ I’ve never heard of this before. I was looking searching on Google. This is weird stuff. I found a video on YouTube of Stephen Hawking where he gave a presentation. He could not speak, but he could use a computer voice. This was very inspiring, him telling the story now.

The invisibility of specialist assistive technologies in our participants’ histories could be explained in a number of ways. Firstly, it could reflect a ‘normalising’ approach to technology by support workers, where mainstream technologies are preferred to specialist technologies in order not to mark disabled people out as different (Rahamin 2004). Secondly, it could reflect the relatively high ability levels of the participants in that all of them had basic literacy and numeracy skills and did not have complex access needs; meaning that perhaps that they did not need specialist technologies. Thirdly, it could suggest that people with mild and moderate learning disabilities were ignored and that much of the specialist technologies were provided to children with visual impairments or physical disabilities. Further research is probably needed to explore which of these explanations is more likely.

### Competent and meaningful use of technology

Karen was particularly interested in how skilled the participants were in their technology use, linking to her own memories of confident technology use. For example, Karen shared with us:

My happiest memory is when I didn’t have to ask people to set the computer up. Once I got the hang of it there was no stopping me. When I get a new laptop, I don’t bother with the instructions. I just plug it all together, switch it on and off I go. Having someone showing or telling you what to do, they do it their way, and they don’t understand that I work differently.

In sharing her technology memories within this current project, Karen made it clear that meaningful technology use for her involved programming, writing websites and playing games- all requiring very different skills to word-processing, and arguably more advanced:

One of the guys in the group home, had a computer and he let me borrow it. It was about 1984 and it was a Commodore Vic 20. Loz taught me how to programme it. I wasn’t writing games, I was writing little tunes and things like that. I was using POKE [8]. I think some years went by when I didn’t bother with the computer. I went on a training scheme and I remember using a BBC computer to answer some questions. When I moved to Northampton I wanted to be involved in computers. I don’t know why. I just decided that that was I wanted to concentrate on. So I was doing the training on the Internet. Around 1994 or 1996 I became the Internet Officer for Central England People First. I was the Internet Officer for about 10 years. I had to check all the emails. When we first decided to design a website, we used this programme called Sausage [9]. [Now] I play games [on my iPad] most days.

Perhaps linked to this confidence in using technologies her way, Karen was interested in what the participants shared about why they used the technologies in the way they did- in particular whether this use was meaningful to them. This probably stems from her own experience, where she had experienced being required to do things on the computer that she did not want to do. For example, in ‘Testimonies of Resistance’ (2006, 52) Karen said:

I did do a computer course with an Employment Training Scheme...Well they said we had to sit a maths test, me and Daniel before, just because we had learning difficulties. The other ones didn't have to do it. Really annoying. They were using a program called WordStar, a word-processing thing. It was typing. It was not what I wanted to do, secretary work, as just because I wasn't as quick as the others they put me in the dunce's class. I'm not stupid.

There is a strong argument within the digital inclusion literature that technology use is central to everything we do, and therefore central to living a normal life and our inclusion in society. Digital inclusion happens when all members of society are able to access the affordances offered by technology use (Selwyn & Facer 2007). Despite the powerful narrative that began in the twentieth century regarding how technology had great potential to emancipate disabled people, many are arguing that now in the twenty-first century, there is long-standing digital divide in which people, with learning disabilities, are not accessing technologies to the same degree as non-disabled people. (Carey et al. 2005; Lussier-Desrober et al. 2018). Furthermore, there is strong evidence to suggest that people with learning disabilities experience many of the factors that are linked to digital exclusion such as socio-economic deprivation and fewer employment and educational opportunities (Department of Health 2001; Emerson et al. 2005). It has been tempting for digital exclusion researchers to adopt a 'deficit' approach when thinking about the exclusion of people with learning disabilities and assume that a major cause of their exclusion is that they don't know how to use technologies. The life histories that we have illuminated in our study, suggest that for certain technologies, with some kind of support, people with learning disabilities can be both competent and confident users. For example, both Karen and Ajay shared memories of purchasing, installing and using their technologies. Like Karen and Ajay, we noticed how, most of the participants were also confident and competent technology users. They were very aware of the strengths of technologies (e.g. easy to use, affordable) as well as the weaknesses of technologies (e.g. power, weight and affordability). This confidence is exemplified by a conversation that Ros and Karen had together:

Karen:	I'm probably like Daymien- once I got the hang of it, there was no stopping me. When I get a new laptop I don't bother with the instructions
Ros:	Oh God yes.
Karen:	I just plug it all together, switch it on and off I go

What was not clear from the histories that participants shared, was the extent to which having access to technologies as young children at school had contributed to their levels of confidence and competence. It seems that their experiences after school, might have had more of an influence. All the participants except Sal mentioned using technologies at college or adult training and day centres to undertake certificated courses or projects such as producing a newsletter. This mirrors the memories shared by parents of people with learning disabilities in previous studies (Rolph et al. 2005).

In the late twentieth century disability related developments in technology policy and practice were accompanied by a prevalent narrative that heralded special needs technology as an innovatory prostheses (Foulds 1982; Cain 1984) that had the potential to provide an emancipatory breakthrough for disabled people and increase their independence (Southgate 1985; Day 1995):

“This new technology can emancipate the handicapped and help to open up the horizons of many children whose communication and interaction with the outside world were previously very limited.” (Southgate,1985,150)

The dominance and power of this celebratory ‘master narrative’ produced a range of responses from the educational technology community. Firstly, a tendency to over-focus on the technological wizardry of the new products being developed was observed. The gaze of attention and wonderment was on the abilities of the technology rather than the abilities of disabled people. Such technological determinism can also be accompanied by a failure to see disabled people as agents of their own fate, capable of making decisions about whether technology use was or was not appropriate for them. Roulstone (2016,93) for example, highlights Finkelstein’s view that ‘technology decision-making had to be more fully-shaped by...disabled people aware of the reappraised role of technology’. In the context in which Roulstone was writing, this reappraised role of technology was with regards to being aware that technology did not guarantee liberation or independence. In the context of the life histories reported in this paper, we would suggest that adults with learning disabilities are capable of exercising agency by deciding what constitutes meaningful use of technology in their lives. For example, for Daymien, Ros and Chris, technological competence seemed particularly important to them. Daymien stated that he has been a “whizz-kid since college” and Chris shared that it felt good to be “the cleverest one in the computer lesson”. On their visits to the Woodbine Multi-Media and Research Group, Jane and Karen also observed how members of the group went to Ros for help with their phones, iPads and Facebook accounts, and how Ros really enjoyed helping them. When reflecting on the stories shared by the Woodbine participants and the different purposes or motivations for using their technologies Karen recognised that whilst there were similarities between herself and the participants in how they used technologies (e.g. playing games, using the iPad and FaceBook) there were also differences. She concluded:

I think each one of us had a different perspective on technology- I think their technology suited what they needed.

In their work with adults with learning disabilities in informal post-compulsory education settings, Jotham and Leicester (1988,21) observed that they ‘come to computer sessions not to learn to read, but rather to use computers and make things happen’. This is in stark contrast to the views of other practitioners and researchers who have worked in more formal compulsory education settings who argue that the purpose of using technology is to improve literacy and numeracy or vocational skills (Watts 1986; Vincent 1989). In her work on digital inclusion (Seale 2009), Jane has argued that technologies are only agents of inclusion if users are enabled to use them in ways that are personally meaningful- in Karen’s words- suited what they needed. We are therefore,very interested in what constitutes meaningful use for our participants, is it about making things happen, improving literacy, numeracy and vocational skills or something else? The answer would appear to be that meaningful use is about being able to engage in social and leisure activities. Daymien, for example was particularly proud of his online activity as a DJ. Sal talks about how her happiest memories of using technologies are linked to listening to the news on her iPad. For Rachael, using the Internet to search for images of her favourite media stars was important to her while using email to keep in touch family and friends from church was of real significance to Robert. For Chris, having and using technology meant being able to ‘get some space’ and take his mind off things.



What is particularly striking is that each person appears to have exercised agency in determining how they personally constructed technology use. Furthermore, these personal constructions are not necessarily linked to what they used technologies for in school or college. For example, Chris talks about how, although he was taught to use Microsoft applications at college, he doesn't use them now because he found them too difficult. Conversely, despite having happy memories of using educational games at school, computer games appear to have no great meaning or importance in Kerry's present life. What is also important to note is that, unlike Ajay, none of the eight participants were in employment and using their technology in their work. It is also interesting that none of the participants mentioned a desire for this to happen. This has implications for government driven digital inclusion agendas, much of which is underpinned by a neo-liberal discourse that values employment as the primary outcome or purpose of being digitally included (Seale, 2009); and we would suggest therefore, worthy of further investigation.

### The nature of support available to enable people with learning disabilities to use technology

Jane is interested in understanding the different kinds and levels of support that participants received from support workers (teachers, occupational therapists, social services care workers, advocates, parents and friends). This interest stems from her professional background as a support worker herself. Between 1987 and 1993 she worked in a range of health and social care settings where her role was to use microcomputers and associated technologies to engage people with learning disabilities in interactive and educational activities. She shared with project participants one of her proudest memories of this period, which was when she developed an eight week training package for two young men with learning disabilities; to enable them to not only set up and use the computer in their day centre by themselves, but to support other day centre users to use the computers. When writing about this experience Jane said: "the course has given 'more power in their hands' (Seale 1992,5). The extent to which support from others to use technology truly empowers people with learning disabilities has continued to be of importance to Jane in her subsequent research and she has gone on to define poor quality support as taking control away from the person with a learning disability and making choices on their behalf (Seale 2014).

In the late twentieth century, many expert UK practitioners in the field of education, disability and technology recognised that although Universal Design had a role to play, but didn't rule out the need for some specialist technologists. Rather than focus on the nature of the technology, they chose to focus on the potential outcome of technology use. For example, Blamires (1999,1) included specialist technologies such as speech synthesiers, switchers, Brailers, and environmental control in his review of what he called 'Enabling Technology' along with mainstream technologies such as palm-tops, electronic mail and the Internet. He wrote:

Enabling technology is concerned with the creative and sensitive application of appropriate technology to improve the quality of life of individuals and their range of life opportunities. The technology is appropriate whether or not it is at the leading edge of technological innovation or a piece of 'mass market' low technology. Appropriateness is judged as a result of periodic monitoring of progress by a partnership consisting of the individual, parent/carers and professionals. Enabling technology therefore is about participation in joint decision-making [...].

In addition to the acceptance of specialist technologies, what is interesting in Blamires position is that he is not compelling disabled people to use technologies in order to be independent from non-disabled others such as support workers. This prompts us to reflect on the intentions underpinning the perceived potential of technology and how emancipatory technology is expected to be. Could a disabled person be empowered through their use of technology and still rely on some support from non-disabled people? This also reflects important debates within disability studies regarding whether or not society does or should expect disabled people to achieve total independence and how this compares to the views of disabled people themselves (e.g Corbett 1997). Blamires envisaged a supportive inter-dependent relationship underpinned by partnership and shared decision-making. Others, such as Hawkridge and Vincent (1992) argued that technologies would not be enabling unless support involved appropriate and frequent assessment along with training in how to use technologies. There has however been very little research that has sought to illuminate or evaluate what constitutes 'effective support' from the perspective of adults with learning disabilities and the extent to which support promotes independence from or inter-dependence with their support workers.

We feel that the memories we have captured in our study help contribute towards a more nuanced understanding of what competent technology use by people with learning disabilities looks like, where competence is not understood as operating independently from support workers. For example, we noticed that all of the participants, except Sal, mentioned receiving support from someone else to use or access their technologies. The sources of support varied from professionals, to parents, sibling and peers. With regards to professionals, Chris mentioned how one of his school teachers had shown him how to use the computer. Colin was supported in his technology by a member of staff of the Day Centre he attended and Kerry also spoke of a 'computer teacher' at her Day Centre. Parents and siblings appeared to provide support to the participants in four different ways: i) funding or providing technologies (e.g. Ros, Robert, Rachael and Colin) ii) teaching them how to use technology (e.g. Daymien) iii) using technologies alongside them such as playing computer games or using the Internet (e.g. Daymien and Kerry) and iv) acting as a role model by being a frequent or proficient technology user (e.g Rachael). We also identified what could be considered to be positive and negative examples of support. Ajay for example in reflecting on Kerry's history commented that he thought the support that her dad gave her was a 'positive thing'. He also commented however on the fact that her school teacher had not appeared to appreciate how frustrating it might be for Kerry, never having a chance to get to the next level of the 'Dragon World' game.

The participants did not themselves evaluate the quality of their own individual support networks or the extent to which they involved a partnership of shared decision-making. There was however one occasion where participants opinions were divided regarding the influence of support workers on a fellow participant. When Chris shared with the group that he had to ask permission from the staff at his supported living facility to take money out of his account to buy an iPad the other group members, including Ajay, felt quite strongly that Chris should not have to ask permission, Chris, however saw nothing wrong with this and seemed to accept that the filling-in of forms was a necessary process. In fairness to the supported living staff, whilst they may have acted as a financial gate-keeper for Chris, they do not appear to have attempted to influence whether or not Chris should buy a tablet, or his choice of tablet. Future research could usefully focus in more detail on the extent to which support to use technology for people with learning disabilities involves shared decision-making. Such research might contribute to what Goggin (2018) called a disability-adequate theory of digital inequality by illuminating new aspects of literacy, education and user support. It might also have implications for policy within learning disability support

services in terms of the extent to which support workers are encouraged or mandated by service policy and service managers to shut down or open up opportunities for positive experiences with technology (See also Seale, 2014).

## CONCLUSION

The focus of this paper has been the memories or life histories of people with learning disabilities regarding how they experienced the introduction of technology into their lives and the impact that technology has had on their lives. Our inclusive research with eight adults with learning disabilities has made visible a picture that challenges the traditional image of people with learning disabilities- an image in which they are competent, agentic and equal, but also supported. This study has shown that people with learning disabilities, with access and the support can be successful technology users. Our study has made an original contribution to the fields of technology and disability by being the first to give voice to the memories of people with learning disabilities about their use of technologies. In addition, we have contributed to the debates surrounding how inclusive research methods might be developed further, by exemplifying how the principles of transparency and reciprocity might be meaningfully implemented. We further would suggest that the experience of support reported in this study has something important to contribute to the fields of disability and technology studies with regards to suggesting a more nuanced understanding of notions of agency and meaningful use of technology is required. With regards to policy and practice the results suggest that it may be helpful for learning disability service providers to consider how they might encourage access to and use of technology in order to promote feelings of competency and agency and the potential this might have to contribute to overall improved self-efficacy. It may also be helpful for service providers to consider how they can harness the support of families in encouraging technology use, since they appear to play an important role in the technology use of our participants.

Whilst the study has filled in an important gap in knowledge and has the potential to inform methodological debates, it does have limitations which suggest a need for follow-up work. Firstly, there is a need to repeat the study with a wider, more representative sample of participants. The sample in the study reported here, is a potentially skewed sample in that all the participants had been recruited via their connections with university researchers. There is a need to capture the memories of a wider group of people with learning disabilities, including those with profound and complex needs and the need to capture the histories of those who have less positive experiences and responses than our current participants. The exploratory nature of the study meant that direct questions were not asked of participants such as whether they felt their technology use challenged notions of difference, whether they wanted to use mainstream technology like everyone else or whether they had a disdain for specialist equipment. To address this, we propose a follow study which replicates the inclusive approach adopted in the study reported here in order to design a two-part study that firstly enables participants to share their technology related life histories and secondly examines these life histories in more detail.

## NOTES

- [1] <http://www.open.ac.uk/health-and-social-care/research/shld/>
- [2] <http://participat.blogspot.co.uk/>
- [3] <http://www.bristol.ac.uk/sps/research/centres/norahfryresearch/>

- [4] <http://rixresearchandmedia.org/inclusive-archive/>
- [5] <http://sensoryobjects.com/wp-content/uploads/A-Doing-research-with-people-with-disabilities-using-new-media%E2%80%99%E2%80%93the-application-of-Multimedia-Advocacy-for-collaborative-research-with-people-with-high-support-needs.pdf>
- [6] <https://www.widgit.com>
- [7] <http://possum.co.uk/>
- [8] A BASIC programming language extension
- [9] Hot Dog was an HTML editor developed by Sausage software in the mid 90's

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